In the next portion of the work, comprehending Chapters X. to XVIII., devoted to the description of the metals, Mr. Tidy has introduced some very useful tables, in which he gives, under the more important metals, lists of their salts, with the different acids, as well as the common and constitutional formulæ of the compound, and in many cases the molecular weight, specific gravity, and percentage of metal in the salt. This tabular form has not usually been systematically adopted in text-books, and has many advantages, more especially when the work is used for consultation.

In connection with this part, however, which embraces also the general consideration of acids, bases, and salts, it is to be regretted that the definition of an acid comes so late in the volume as p. 252; we should have expected to have found some description at least of an acid a little earlier. With respect also as to what "an acid is," the index of the work is misleading; thus, for instance, on consulting it with regard to the above point we are referred to p. 527, where we find the definition of an organic acid; the term acid in its ordinary sense being only found under the term salt. It may be urged that an acid is a salt of hydrogen, but it is rather too much to expect one who may be reading a chemical text-book for the first time to know all this, more especially as he meets with no explanation of the matter as far as we have found till p. 252.

The last part of the work, comprising Chapters XIX. to XXXI., is occupied with the consideration of the organic division of the science. We regret that space does not permit us to enter very fully into a review of this portion of the book, but as far as we can judge the information contained in it is accurate and well arranged. Here we are glad to see, as in the chapters describing the metals, tables giving the names, formulæ, specific gravities, boiling points, &c., of the different substances arranged in their respective groups or series. These tables we have no doubt will prove of very great use to the student. An appendix contains an account of the recent experiments of Pictet on the liquefaction of oxygen, &c., and a description of Mendeleeff's "Law of periodicity of the chemical elements." Great clearness in style is given to the book by the tables just referred to, and to the methodical manner in which Mr. Tidy has arranged the individual consideration of each element under several heads, as "(1) History, (2) Natural History, (3) Preparation, (4) Properties—(a) sensible, (β) physical, and (γ) chemical," and so on; but notwithstanding this arrangement, which adds to the value of the book, we regret the order in which the author has placed the non-metallic elements, which we cannot help regarding as defective in the case of a text-book designed for the use of students.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

On the Proposed Observatory on the Summit of Mount Etna

Two years ago (September 22, 1876) Prof. Tacchini, of Palermo, read a paper before the Accademia Gioenia of Catania "Sulla Convenienza ed utilità di erigere sull' Etna una Stazione Astronomico-Meteorologica" (NATURE, vol. xv. p. 262). He proposed herein that an observatory should be erected at the Casa Inglesi, which is situated at the foot of the cone of the great crater 9,652 feet above the sea. In it daily observations, both astronomical and meteorological, should be taken during six months of the year, and the telescope should then be removed to Catania and the observations continued.

No more has been heard of this scheme but we sincerely trust that it will not fall to the ground, and that, if need be, our own astronomers will come forward to promote so good a work. No one who has not witnessed a cloudless starlit sky on a perfectly calm night from an elevation of two miles, can realise the difference between it and the same sky seen from the surface of the earth. When I ascended Etna in August, 1877, I was particularly struck by the extraordinary brilliancy of the midnight sky. It was one blaze of brilliant light. Myriads of stars which I had never seen before were visible, and the whole sky was studded with stars of every magnitude, colour, and brightness. The meteors which flashed across the sky were too numerous to count, and the stars themselves shone with extraordinary scintillations. I specially noticed a curious effect for which it is not easy to account, viz., the apparent lowness of the sky. It appeared to be almost pressing down upon one's head, and the larger stars seemed to be suspended below the sky. A good telescope brought to bear upon such a sky would reap a harvest of results. Tacchini noticed that Venus cast shadows, and Sirius appeared to rival Venus.

The observatory on Etna should be constructed on the most sheltered side of the mountain. It might be placed a little to the west of the Torre del Filosofo, the traditional observatory of Empedokles. It could be built of lava collected on the spot, and it would not be difficult to sink the foundations to a depth sufficient to ensure steadiness. It should be telegraphically connected with the observatory at Catania, and barometric and thermometric readings should be taken at the same instant of time at the two stations. It should be provided with a good 8 or 10-inch refractor, the lenses of which could be transported to a duplicate mounting in the observatory of Catania during the winter months. Moreover, it should possess a complete set of self-registering seismological instruments similar to those employed by Palmieri, and now exhibited in the Paris exhibition. Good spectroscopes should be provided, and a set of instruments for magnetic observations.

We are quite confident that considerable results would accrue to many of the sciences if systematic observations were carried out under the proposed conditions which have never yet been attempted, and we trust that astronomers both at home and abroad will not allow the subject to fall to the ground.

G. F. RODWELL

Compound Lightning Flashes

IN NATURE, vol. xviii. p. 67, an instance is given of several flashes of lightning following in the same path, and information concerning similar observations is asked for.

In almost every tropical thunderstorm the phenomena may be seen; to best advantage when the storm is distant. Three, four, and even more discharges may take place, the second and remaining flashes following in rapid succession through the identical path taken by the first. The intervals between the flashes vary; one may follow another so rapidly as to seem merely like a bright pulsation in the first, or there may be an appreciable interval of darkness; but it is certain that, if the eye can be trusted, these secondary flashes follow the exact course of their primary. The reason of this may be looked for in the heating effect of the lightning. The partial vacuum caused by the first discharge offers a line of comparatively small resistance to succeeding currents.

The singular part of the phenomenon is the rapidity with which the electricity must form or collect to admit of several discharges taking place at the same spot, for I do not think the secondary flashes can be regarded as merely residual.

During a severe storm at Mangalore on the 28th of last April two military buildings were struck by lightning, and, from the numerous paths taken by the electricity through the buildings, in its passage to the earth from the points struck, I was led to think the damage might be the result of these *compound* flashes; for it was conceivable that the destruction caused by each discharge might increase the resistance of the path taken, leaving succeeding flashes to follow in fresh directions of

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less resistance. New lines might indeed be opened out by fragments of metal, such as nails, &c., scattered by the explosions.

In the case mentioned above, it was difficult, without some such theory, to account for the breaks in the courses followed by the electricity. E. H. PRINGLE

Bath, October 1

Gyno-Diœcious Plants

DURING the past summer I have found the following species in a gyno-diœcious condition, namely, *Ranunculus acris*, *R. repens*, *R. bulbosus*, and *Stachys germanica*, all of which have the corolla considerably reduced in size, and the stamens in *R. acris* and *S. germanica* either absent or reduced to scale-like bodies devoid of pollen. In *R. repens* and *R. bulbosus* the stamens are not so much reduced, but so far as I can judge they produced little or no pollen. The female form in *R. acris* is very common in Lancashire, but I failed to find any on the Lincolnshire coast although I searched carefully for it. In *R. repens* the female form is very rare, having seen only about thirty plants in all. I have also found the *Geum rivale* to be andro-monœcious. So far as I can ascertain these plants have not been noticed in the state described above.

Ashton-under-Lyne THOMAS WHITELEGGE

Wasps Under Chloroform

A FEW days ago a friend told me that she had often placed a bee under chloroform, and that the victims when they found they must die invariably brought their stings to their mouths and sucked the little drop of poison into their mouths. She offered to show me the experiment and endeavoured to catch a bee, but failing to do so she caught a wasp, an insect upon which she had not previously experimented in this way, and we both eagerly watched to see if the wasp would behave as the bees had done under the influence of the narcotic.

The wasp being put under an inverted tumbler in company with a piece of paper saturated with chloroform, in a very few seconds the insect fell on its back and almost immediately afterwards curled up the tail with the sting protruded and a drop of clear fluid on the end of the sting. The sting was brought to the mouth and the drop of fluid disappeared. The wasp then became motionless. After a few seconds the tumbler was removed and the air allowed to play freely on the insect, but no sign of life appeared, except once a slight twitch of the wing. To test whether the insect was really dead my friend placed it in a butterfly cage and left it out of doors all night. Next morning the wasp had disappeared; having perhaps crawled out by a little chink in the cage door.

Can you tell me whether so curious an action of these insects when subjected to chloroform is well known? Does it fulfil any good purpose? Is the poison a narcotic itself and taken by the insect to dull its pains when death seems inevitable? The revival of the wasp appears to show that neither the chloroform nor the poison of its own sting is deadly to the insect. W. M.

Clevedon, September 21

"Mercator" the Geographer

IN Prof. Huxley's "Physiography" it is stated that the real name of "Mercator," of "projection" fame, was Gerard Kauffmann. In a recent number, however, of the popular German journal, the *Gartenlaube*, there is a woodcut of Mercator, taken from an old sketch, under which is the legend—*Gerard Kremer genannt Mercator*. Now, as the word Kremer, or Krämer, means a small retail shopkeeper, the Latin pseudonym is equally applicable, although there is an appreciable difference, meaning excluded, between the two German surnames.

J. C. G.

Our Natural History Collections

IN your recent articles on "Our Natural History Collections," in which you criticised the Act of Parliament just passed authorising the removal of the natural history collections in the British Museum, I was surprised not to find any mention of the third clause, which inaugurates a new and enlightened policy in the disposal of duplicates. The clause was inserted at the instigation of Mr. A. J. Mundella, M.P., and Mr. J. Chamberlain, M.P., and is as follows:—"The trustees of the British Museum may also give away any duplicate works, objects, or specimens not required for the purposes of the museum, provided always that the powers hereby conferred shall not extend to any duplicate works in the royal library of King George IV., or in the Crackerode, Grenville, or Banksean libraries, or to any objects presented to the museum for use or preservation therein."

This important departure from the previous holdfast policy of the British Museum will be hailed with delight by all provincial students of natural history, as will also the paragraph in Prof. Sir C. Wyville Thomson's report to the British Association, referring to the disposal of the *Challenger* collections (*vide* NATURE, vol. xviii. p. 534).

Public museums are springing up all over the country, and any one acquainted with them knows well the difficulty of forming a natural history collection properly suited to educational requirements. If the power now conferred on the trustees of the British Museum is wisely and liberally used, I think as much material will be found stored away as will furnish provincial museums with the specimens required to make them educationally valuable. E. H.

Sheffield, September 26

OUR ASTRONOMICAL COLUMN

BIELA'S COMET.—The great swarm of meteors through which the earth passed on the evening of November 27, 1872, and which were found to be moving in the orbit of Biela's comet, must have been descending to a perihelion passage one month later, or about December 27·6 G.M.T. The comet not having been observed as such since the autumn of 1852, when both parts into which it was separated in 1846 were recovered, we may take this date as a new point of departure, assuming for the present that in following the great assemblage of meteoric bodies seen in November, 1872, we are following what now remains of the comet.

Hubbard's elements of the S. F. nucleus of 1852, with Michez's perturbations by Jupiter and Saturn, give the following elements for 1866, the latest year to which perturbations have been calculated:—

Perihelion Passage, 1866, January 27·6968 G.M.T.

	°	′	″
Longitude of perihelion	109	39	48
,, ascending node	245	43	42
Inclination	12	22	3
Angle of eccentricity	48	46	19·4
Log. semi-axis major	0·5505333		

We know that the comet did not arrive at perihelion at or near the above date in 1866, and hence that disturbance of its motion from an undiscovered cause must have taken place some time in the interval 1852–66. The period of revolution belonging to this orbit is 2445·67 days. There is no reason to suppose that the swarm of meteors is revolving in a shorter period, and we may consequently assume that it will not be again in perihelion before the date, which this period will give, if reckoned from December 27·6, 1872, or September 8, 1879; how much later the perihelion passage may fall it is impossible to foresee. We refer to this point on the present occasion with the view to suggest that a close watch for meteors of the Biela-comet stream should be instituted when the earth again passes the descending node of the comet's, orbit on November 27 next. With perihelion passage on September 8, 1879, the main cometary body would be in a true anomaly of −135° 15′. On December 6, 1798, when Brandes witnessed a great meteoric display, as the earth traversed the comet's orbit, it was in a true anomaly of about −103°, but in 1838, when under similar conditions meteors were observed in large numbers in Europe, Asia, and America, December 5–8, the comet's true anomaly was about −128°.

As regards the recovery of the comet in 1879, though perhaps not hopeless, a very strict examination of the

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